

# WHY OPTING FOR A CENTRALISED SYSTEM DESIGN WITH THE FRONIUS TAURO IS WORTHWHILE

**A centralised system design with the Fronius Tauro Precombined offers numerous advantages during installation and operation of the system. The use of small cable cross-sections and the placement of the inverter in one location make installation and maintenance easier when servicing is required. While the majority of photovoltaic systems are currently constructed with a decentralised design, the centralised solution impresses with clear cost savings for photovoltaic systems covering large distances and large areas in particular.**

## FRONIUS TAURO DIRECT OR PRECOMBINED?

Whether Direct or Precombined, the Fronius Tauro is a robust inverter that combines maximum flexibility in system design with low total system operating costs – even under the harshest environmental conditions or during maintenance work. Power without compromise. **Fronius Tauro. Designed to perform.**

The Fronius Tauro is available in two versions and **allows for a decentralised and centralised system design**. The flexible system design allows every PV project to be perfectly adapted to the individual conditions on site.

## DIRECT (D)

- For a decentralised system design and direct connection of the strings to the inverter
- In a system with a decentralised design, the inverters are placed right next to the PV module array. In doing so, larger distances are covered using AC cables.

## PRECOMBINED (P)

- For a centralised system design in which the strings are connected to the Fronius Tauro via DC combiner boxes
- In a **system with a centralised design, the inverters are placed close to the transformer or main distributor** and connected via DC string combiner boxes. The AC

cable routes from the inverters to the transformer are therefore much shorter than in a decentralised system design. The larger distances from the inverters to the DC string combiner box and from there to the PV modules are covered using DC cables.

## HOW THE DECISION TO OPT FOR A CENTRALISED SYSTEM DESIGN IS MADE

The decision as to whether a photovoltaic system is erected with a centralised or decentralised design depends on the conditions on site. The distances between the module array and the main distributor are crucial for the cable lengths and the associated cable cross sections. Generally speaking, **the greater the distance between the module array and main distributor, the more cost-effective a centralised system design will be.** This is because with long distances in particular, yield losses from cables must not be underestimated. The Tauro Precombined is therefore **ideal for photovoltaic systems with long distances between the module array and main distributor, for large field installations and for roof configurations that are either large-scale or difficult to access.** To keep system costs low, considerations regarding installation, maintenance and servicing should be factored into the decision to opt for a centralised or decentralised system design at an early stage.

## REDUCING THE CONSTRUCTION COSTS FOR A PHOTOVOLTAIC SYSTEM

In a system with a centralised design, for example a photovoltaic system with the Tauro Precombined, all inverters are placed together close to the main distribution board or transformer (this could be approx. 10-15 metres). This means that it is possible **to cover the cable distances from the string combiner boxes up to the inverters using cables with a cross section of 95 mm<sup>2</sup>.** Thin AC cables can be selected according to the cable length and output.

In addition to **easy handling**, the large-scale use of cables measuring 95 mm<sup>2</sup> leads to a **considerable cost saving**. Roughly €1000 can be saved with a 500 kWp photovoltaic system equipped with this cable type.\*

What's more, **the Fronius Tauro has an integrated communication unit** that is equipped with LAN and WLAN. A separate Datamanager does not need to be purchased and installed to connect all the inverters. The Tauro Precombined inverters are connected to the router individually with separate LAN cables. In a system with a centralised design, the data communication no longer has to be routed from inverter to inverter and from there to the router. This simplifies the communication setup in a photovoltaic system.

As there is no forwarding of the signals between the individual inverters, **even in the event of a fault in a communication unit, the data communication of the other inverters is not affected and continues to function without problems.** Overvoltages between the inverters and the associated damage are thus also prevented.

*\*This figure is based on experience and was calculated at current aluminium cable prices.*

## SIMPLIFIED MAINTENANCE OF THE PHOTOVOLTAIC SYSTEM

The centralised system design of the Tauro Precombined means that all inverters are very close to one another and placed near the main distribution board or transformer. This results in **easier maintenance of the photovoltaic system, as all inverters are placed together in one location and are therefore easier to access** than if they were distributed over a large area.

The use of cables with a reduced cross section is also an impressive feature when it comes to maintenance. If the entire PV area aside from the combiner box is set up using cables with a cross-section of 95 mm<sup>2</sup> instead of cables with a large cross-section of 150 to 240 mm<sup>2</sup>, rectifying problems in the cabling is made much easier and more affordable.

## REAL-TIME MONITORING AND PRODUCTION COMPARISON WITH SOLAR.WEB

Monitoring the photovoltaic system is quick and easy using the Fronius Solar.web online portal. **A fault in a string with Fronius Tauro inverters can be detected via the portal.** In a 500 kWp photovoltaic system for example, each string has a very high output of 10 kW. If a string fails, the output difference between one inverter compared to the rest is alarmingly high. In addition to the classic functions for monitoring the photovoltaic system, Fronius Solar.web also offers two very important and user-friendly features for immediate identification of any malfunctions.

### REAL-TIME MONITORING

In Fronius Solar.web, live data regarding the power generated by the inverters at a given time can be viewed in real time. A **live comparison of the current power and production of all inverters as well as their installed output specified as a percentage** can be performed at any time of day. If there is a deviation, the production bar in the online tool automatically changes colour to signal this information immediately.

### AUTOMATIC PRODUCTION COMPARISON

An **automatic comparison between the inverters** is performed at the end of each day. If a deviation is identified, the user is sent a notification automatically. This means that any system faults can be identified as quickly as possible and rectified. The settings for this comparison can be individually adapted in Fronius Solar.web.

## LOW YIELD LOSSES DURING MAINTENANCE AND MEASURING WORK

The Fronius **Tauro Precombined** is equipped with two separate DC disconnectors. These can be deactivated individually on the device. If servicing is required, only the string that is currently being worked on is deactivated. The second string continues to function as usual. The advantage here is that **during maintenance work on the strings, very little yield is lost**. Production losses can be halved in this way using the Tauro. Considering that such work can sometimes take several hours or up to an entire day, this represents a major financial advantage.

## THE ADVANTAGES OF A CENTRALISED SYSTEM DESIGN WITH THE FRONIUS TAURO

- Reduction in installation and BOS costs
- Simplified construction of the photovoltaic system
- Simplified maintenance of the photovoltaic system
- Real-time monitoring and production comparison with Fronius Solar.web
- Low yield losses during maintenance work

**[More information about the Fronius Tauro](#)**